

13A

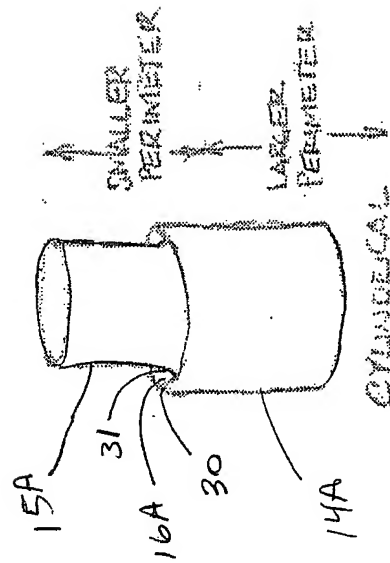


Fig. 4

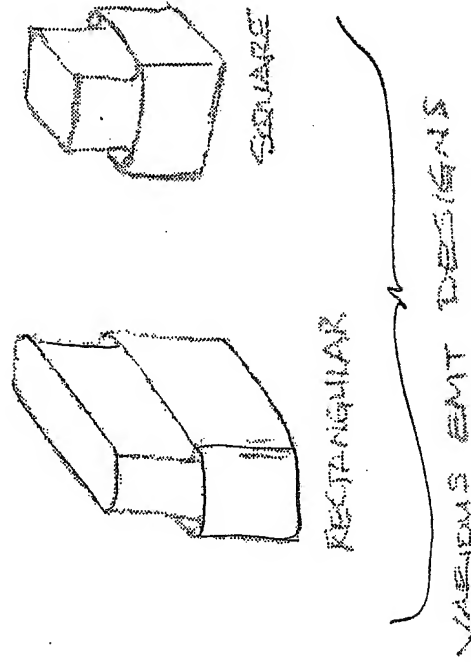


Fig. 5

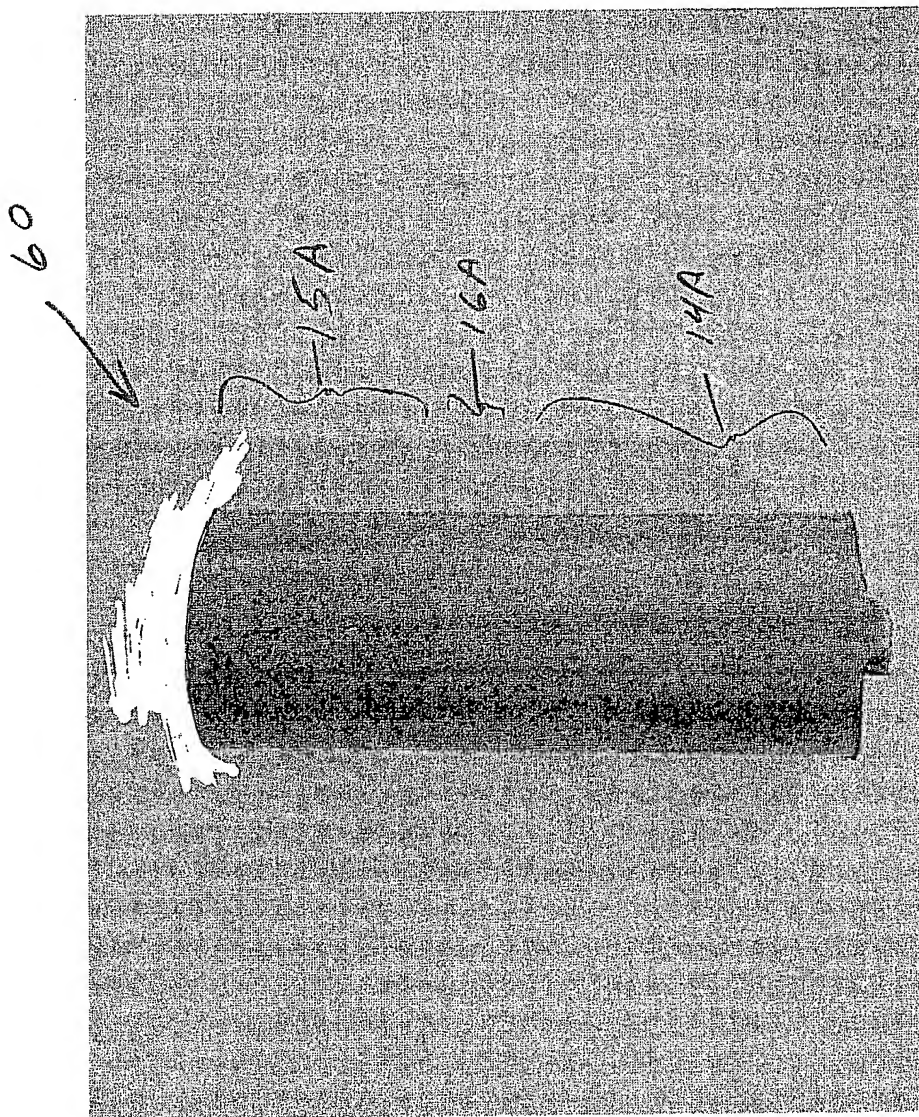


Fig. 6

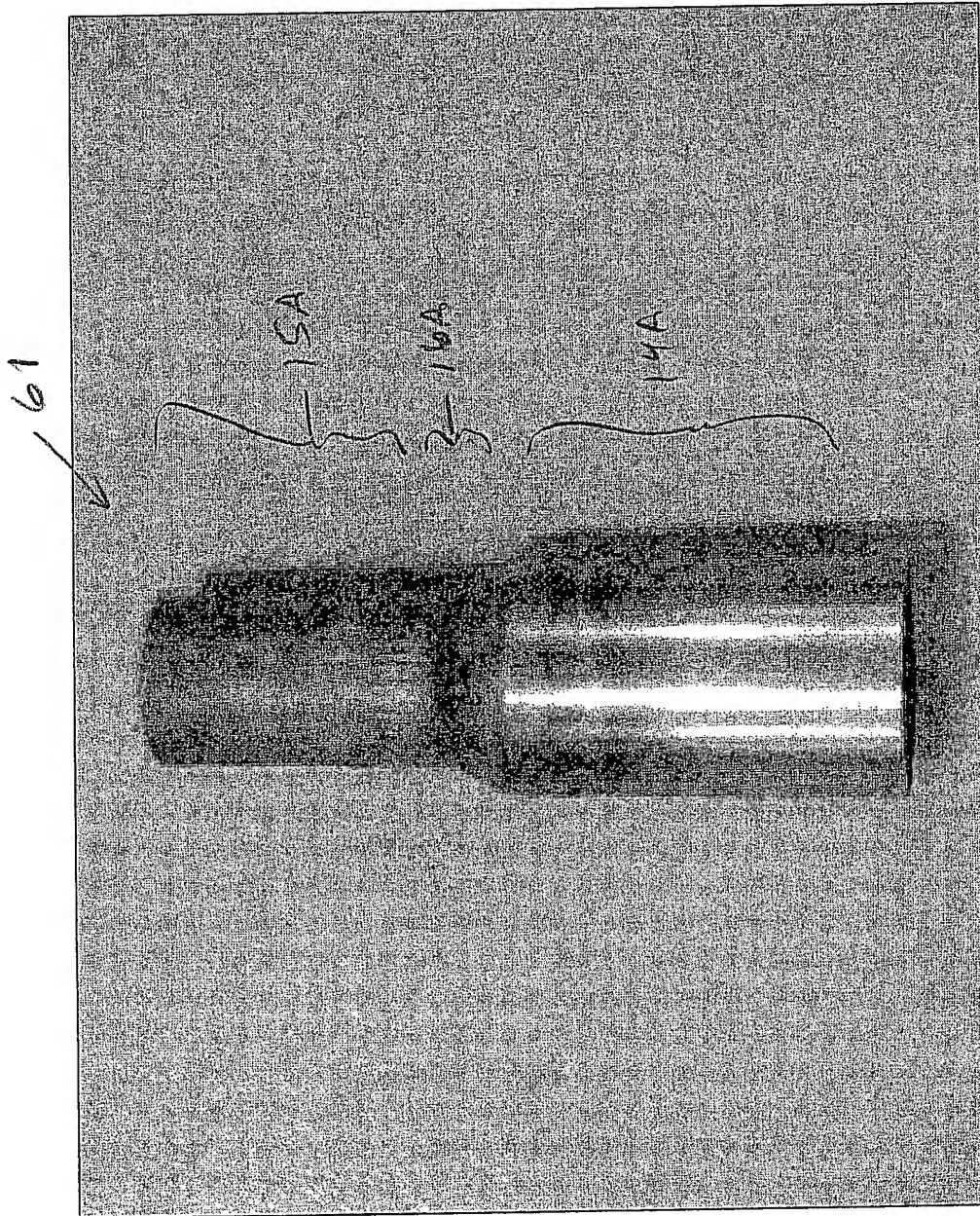


Fig. 7

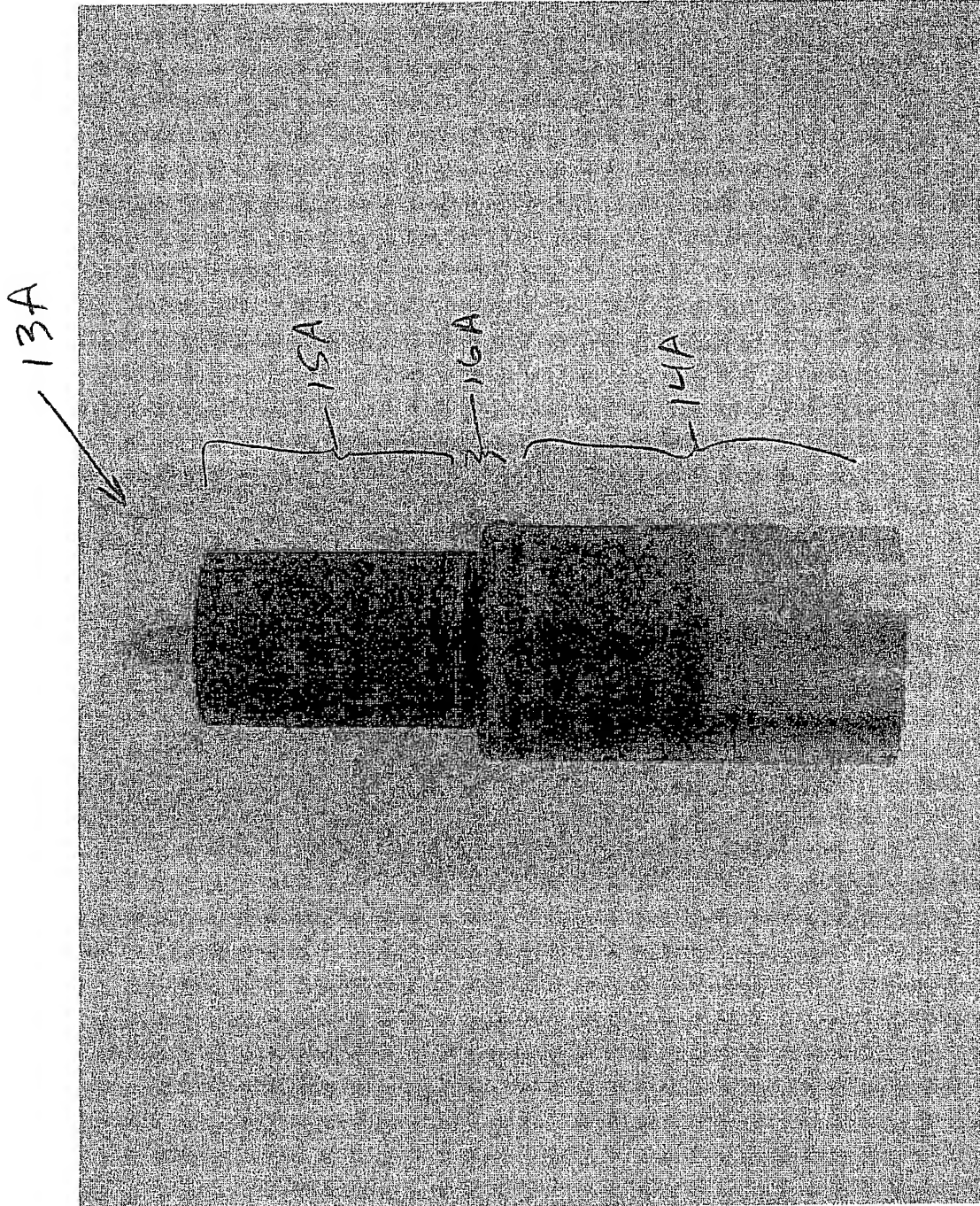


Fig. 8

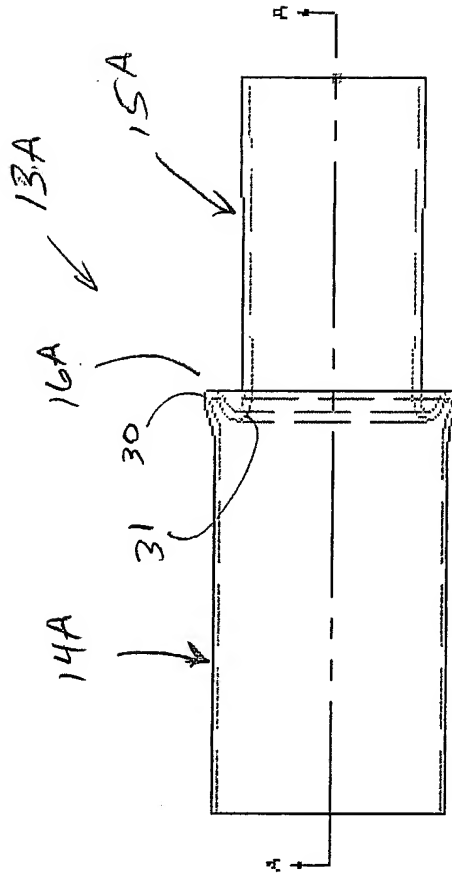


Fig. 9

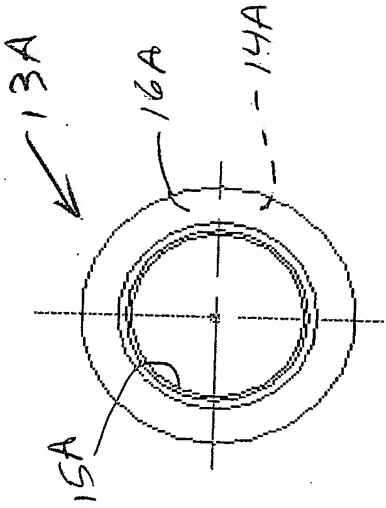


Fig. 10

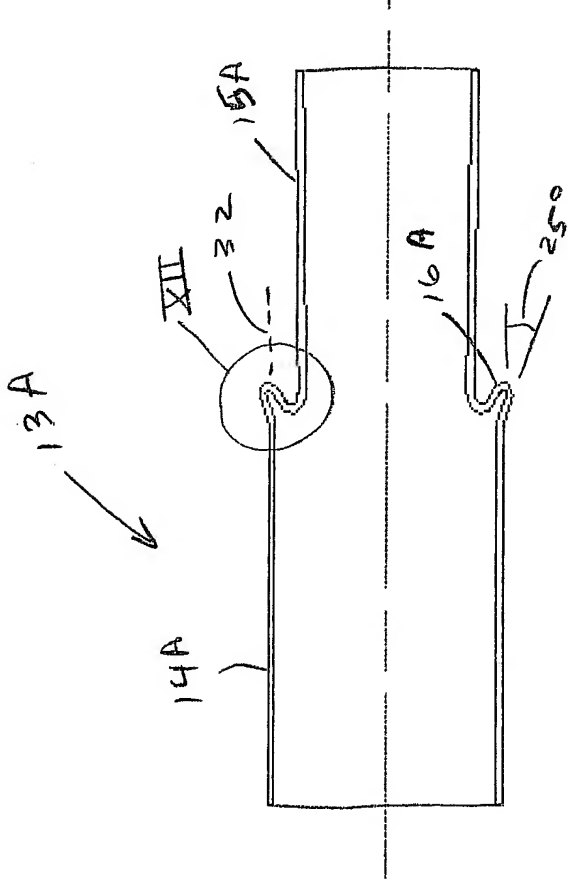
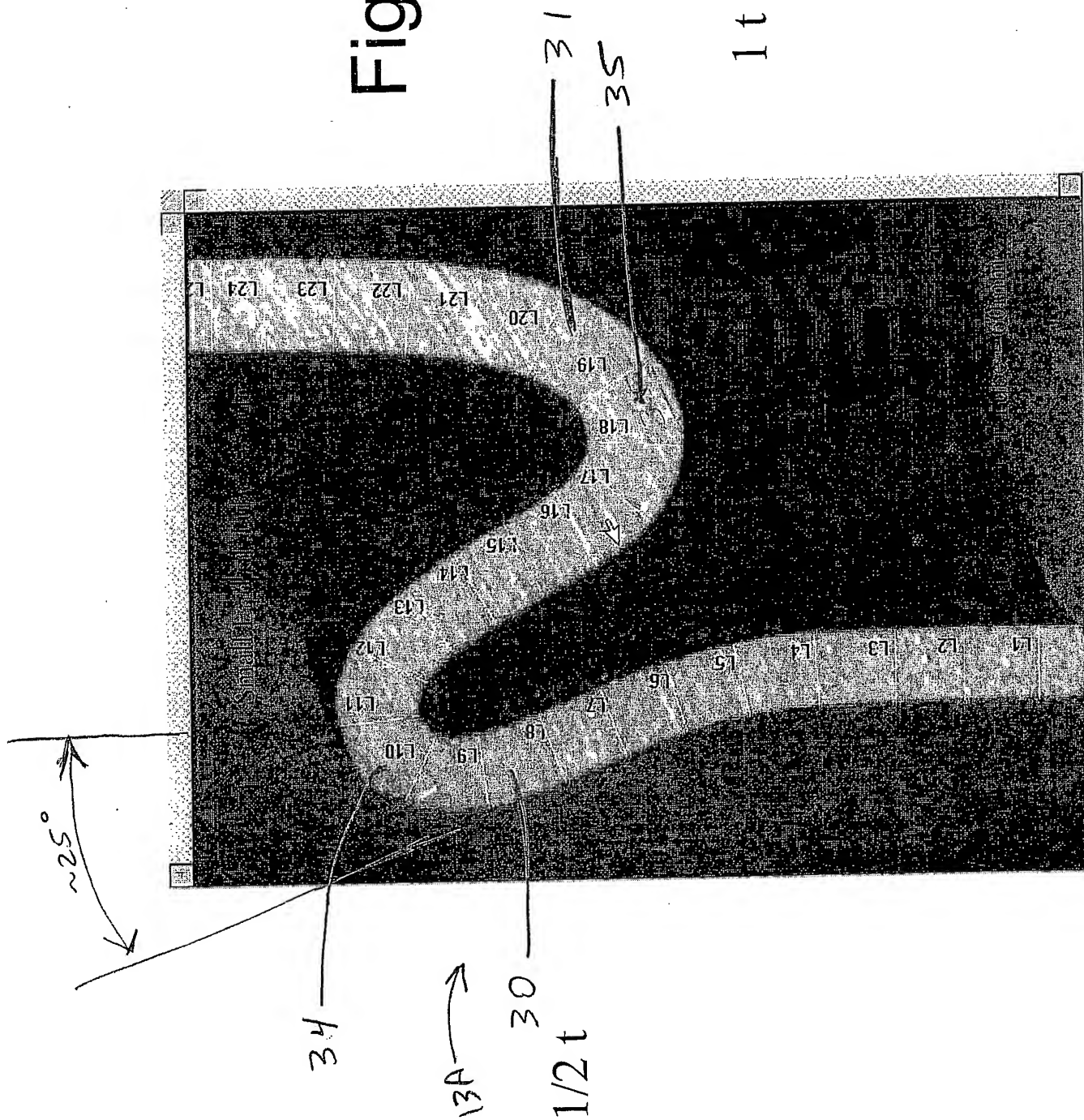


Fig. 11

Fig. 12



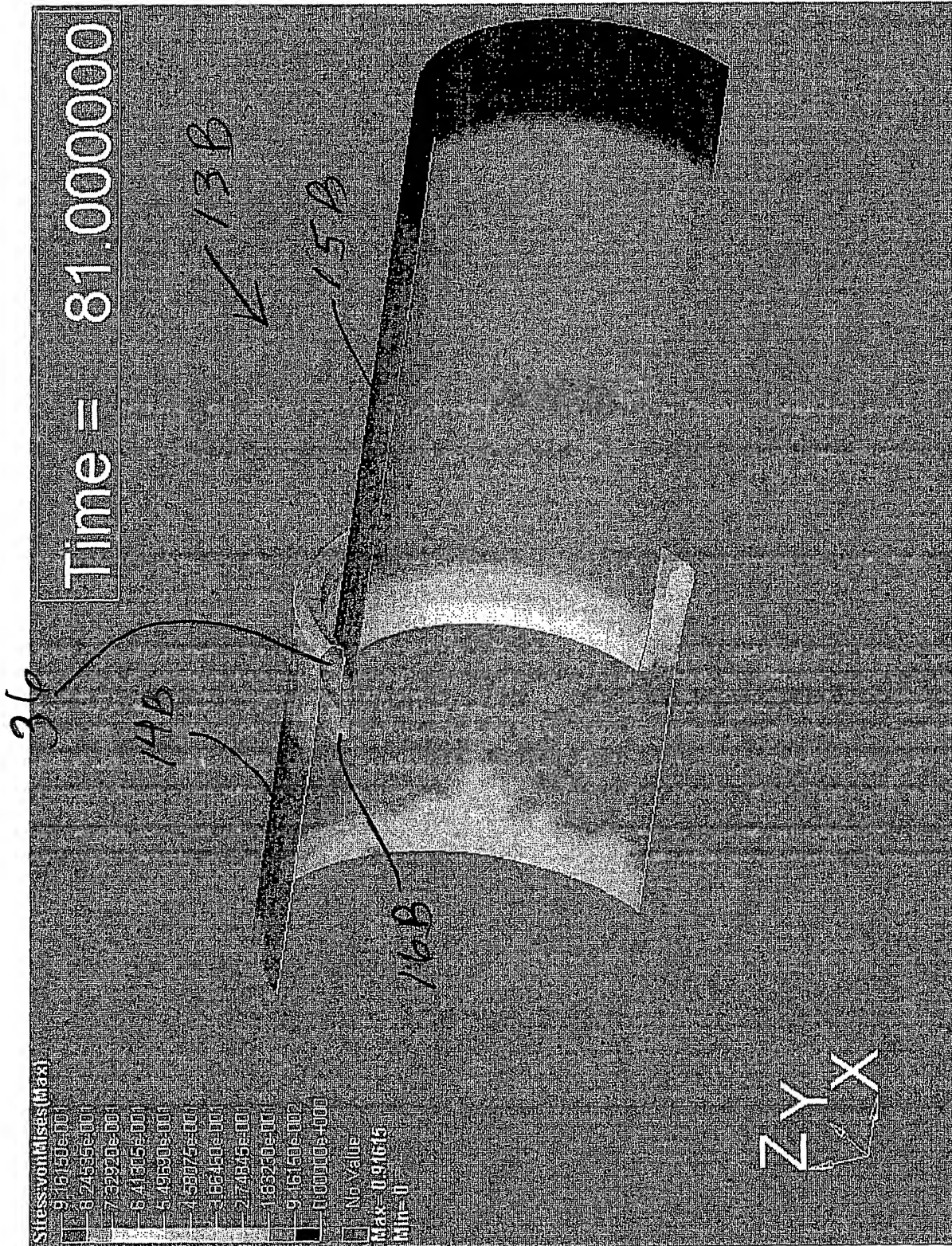


Fig. 13

Fig. 14

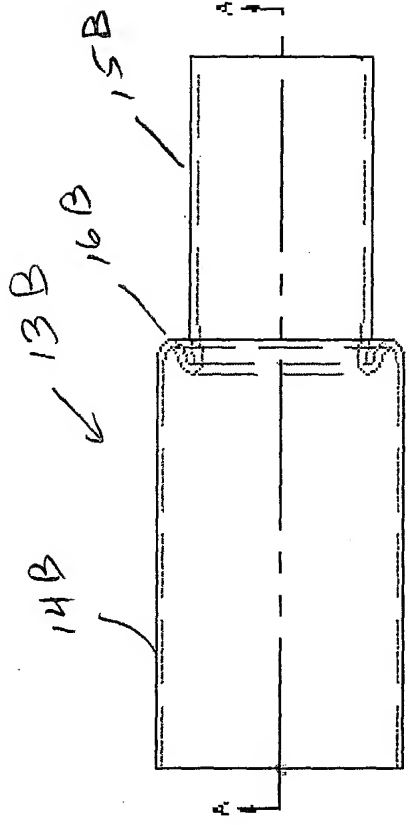
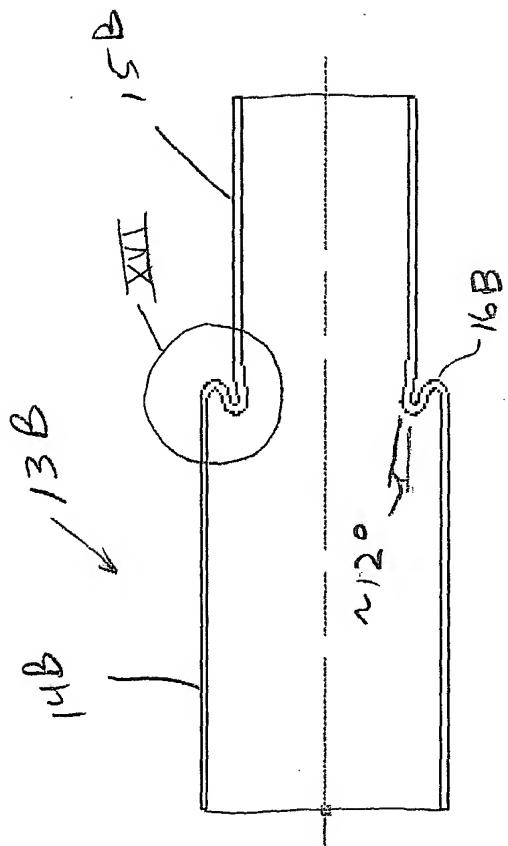


Fig. 15



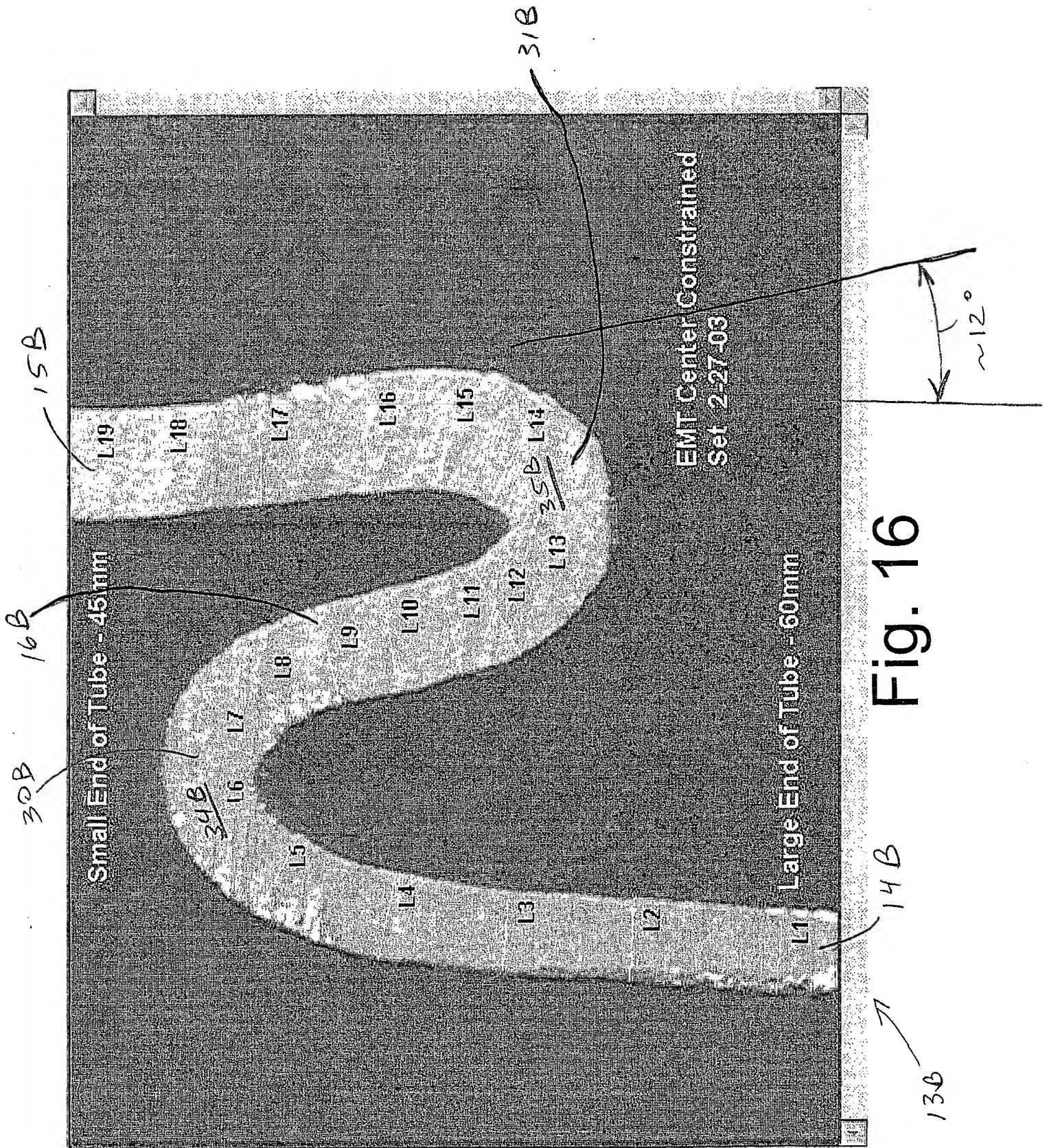


Fig. 16

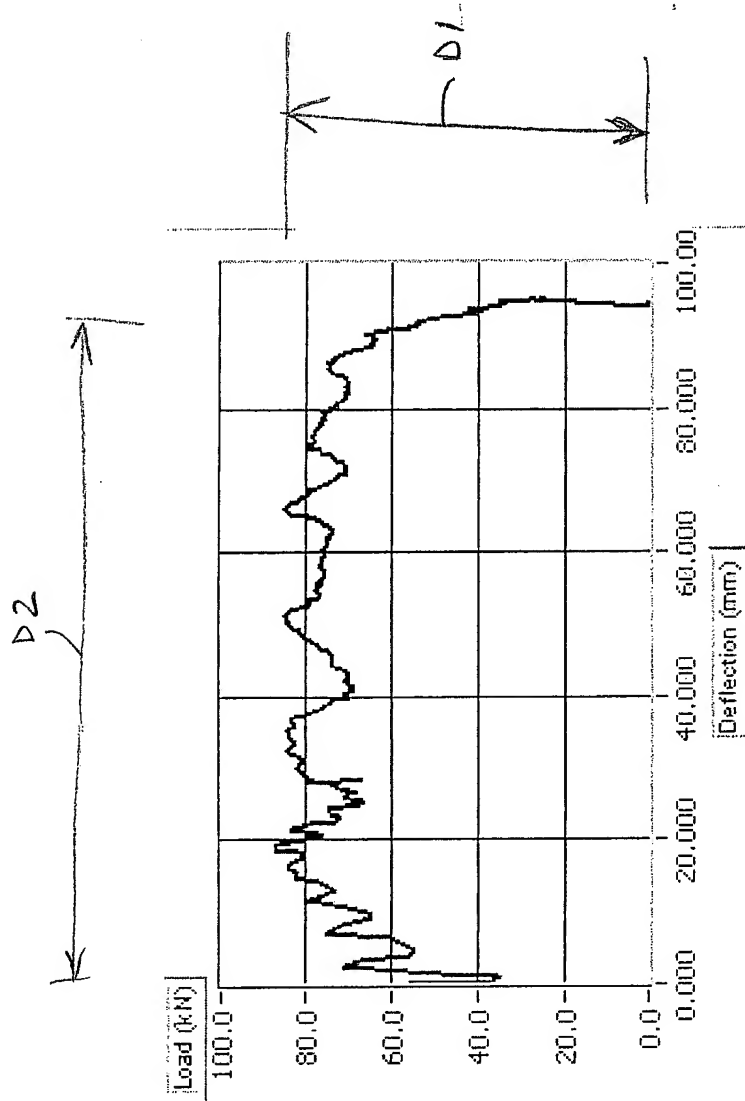


Fig. 17

Annealing Coil @ 20% power

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Distance from bottom of tube	Hardness	Tensile Strength (KSI)
25 _{mm}	29 HRC	135
35	30 HRC	138
45	30 HRC	138
55	33 HRC	149
65	30.5 HRC	140
75	23.5 HRC	118
85	95 HRB	100
95	90 HRB	89
105	85 HRB	82
115	85 HRB	82
125	82 HRB	77
135	82 HRB	77
145	82 HRB	77
155	85 HRB	82
165	84 HRB	81
175	82 HRB	77

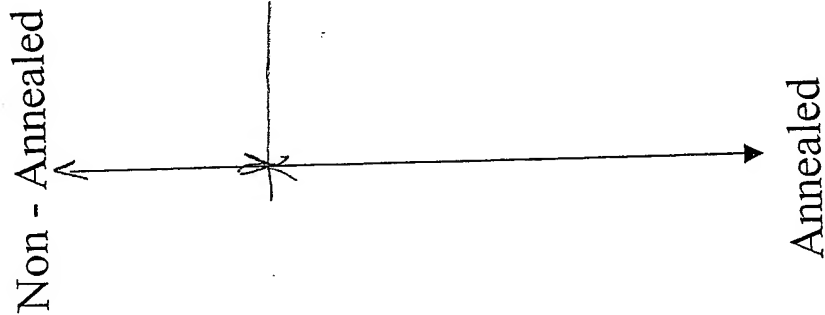
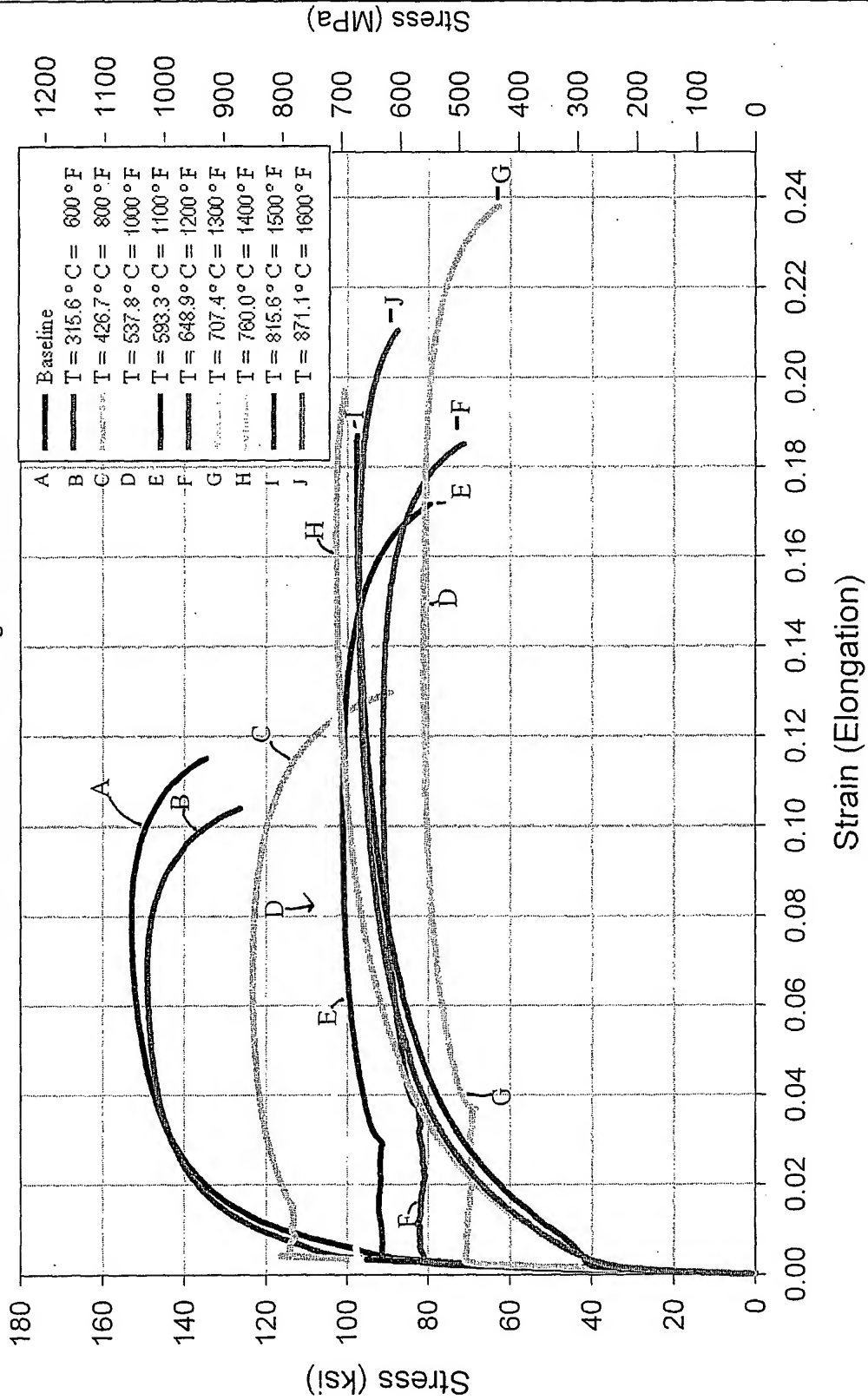


Fig. 18

Shape Technical Center

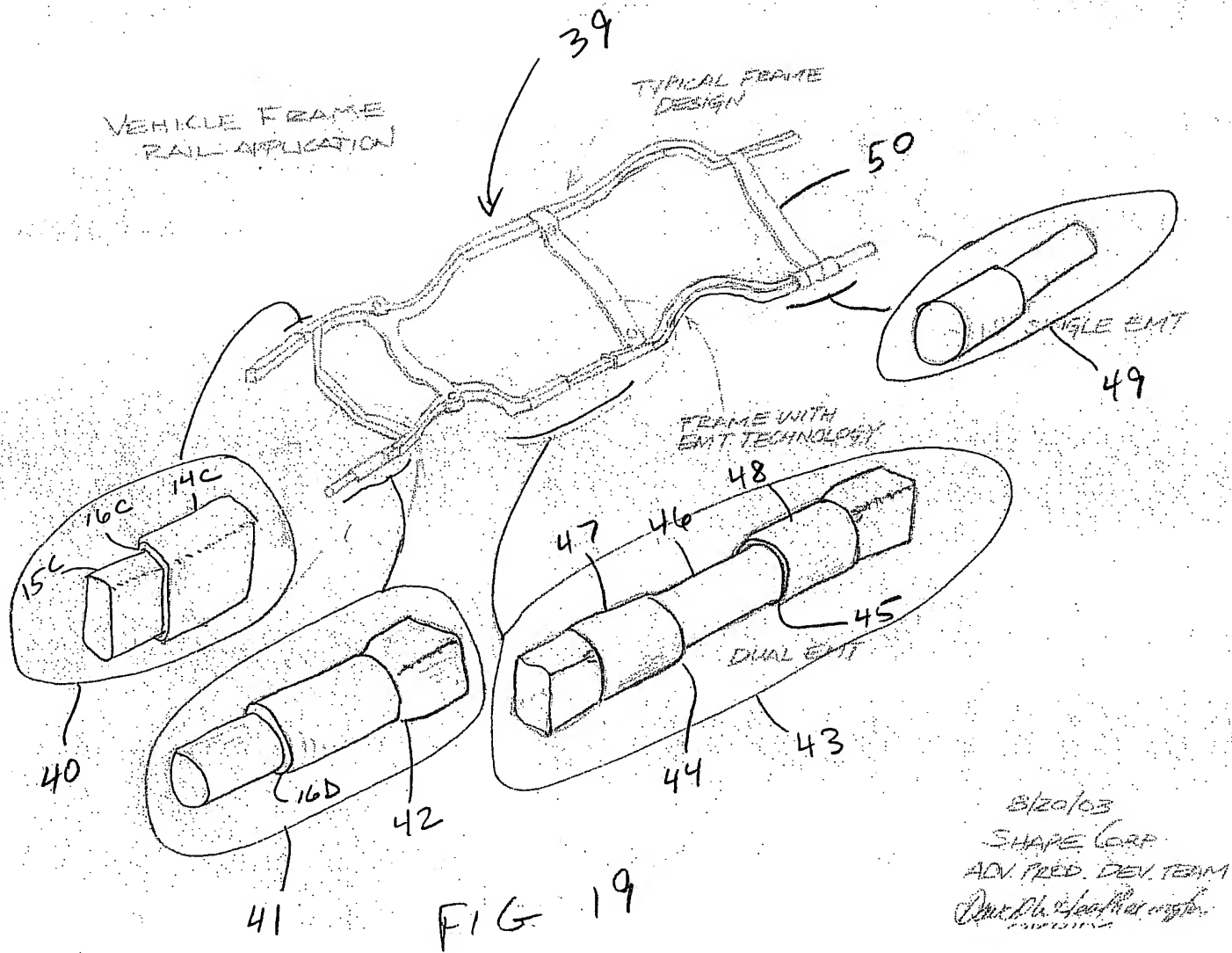
Dual Phase Steel Annealing Characteristics



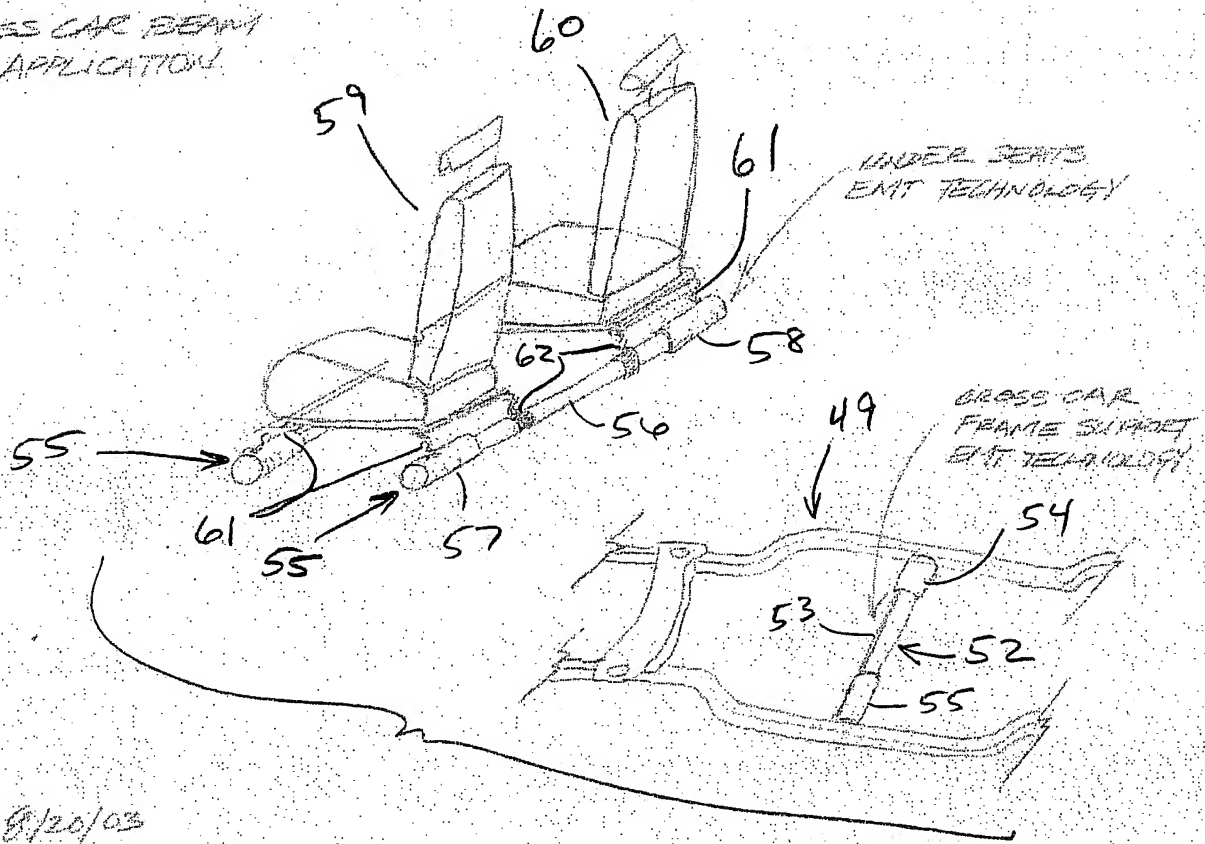
M. Hesselweert

3/11/03

Fig. 18A

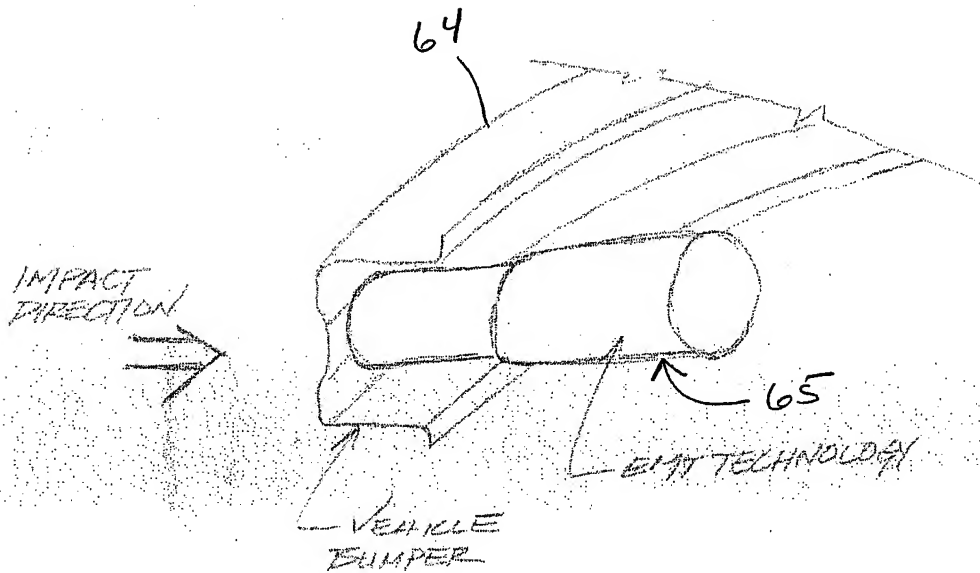


CROSS CAR BEAM
APPLICATION



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SHAPE CORP
ADV. PROD. DEV. TEAM
Dustin S. Heatherton

FIG 20



VEHICLE BUMPER
APPLICATION

FIG 21

8/20/03
SHAPE CORP.
ADV. PROD. DEV. TEAM
David L. Clatterbaugh

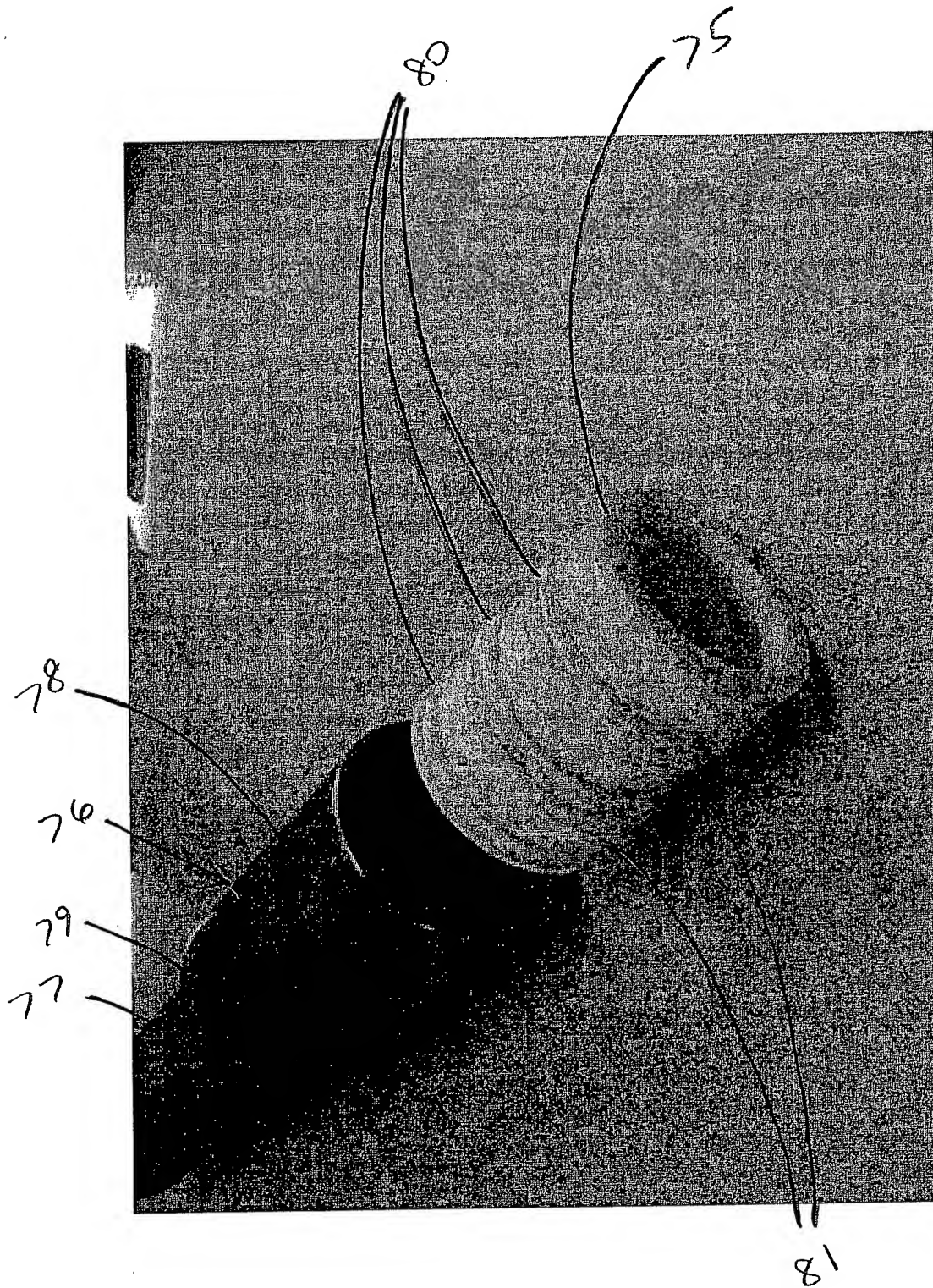


FIG 23

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ABSORBING IMPACT ENERGY
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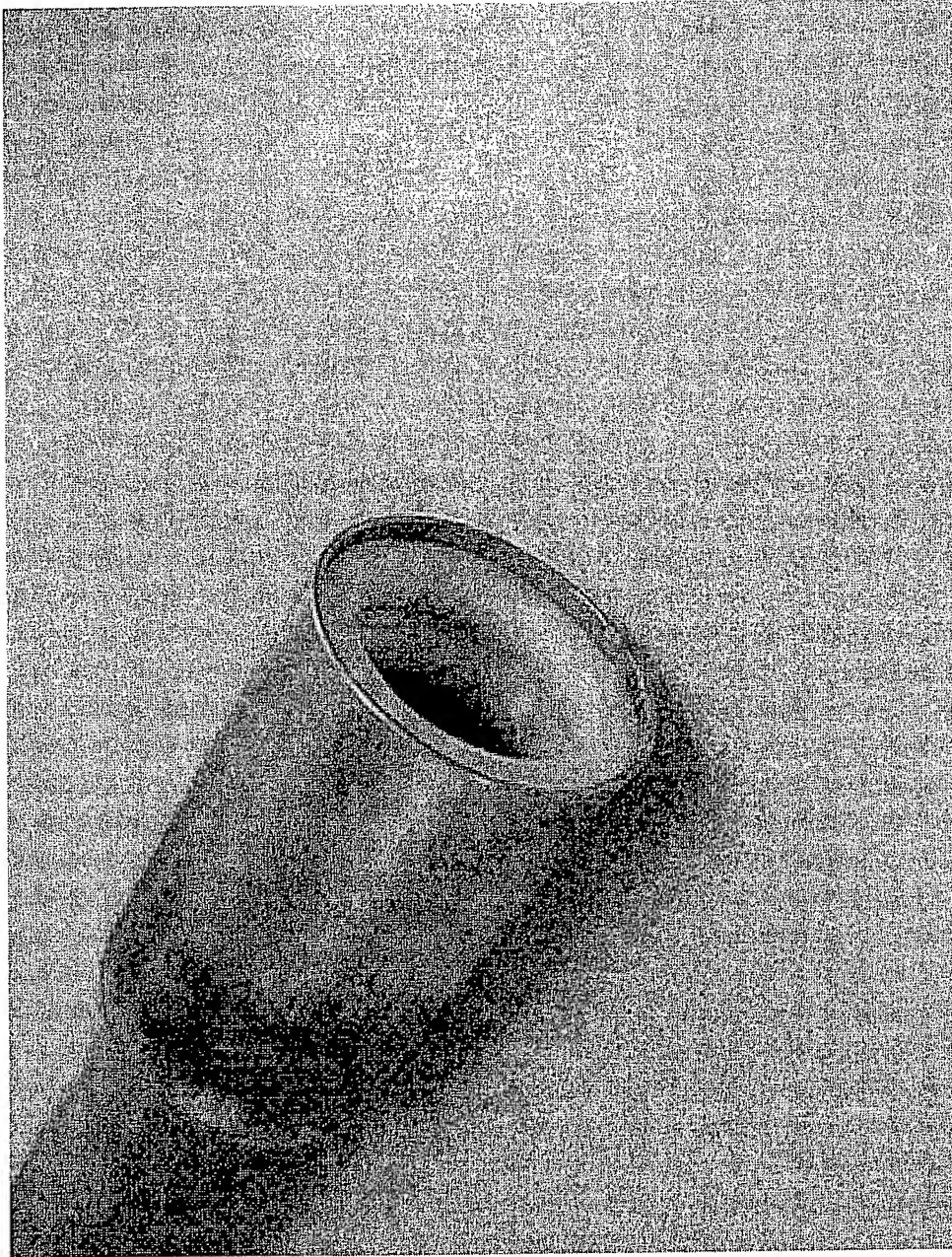


FIG 24